

Killer Kool Aid

Objective: You will understand how to use the dilutions formula and apply it in a laboratory setting

$$M_1V_1=M_2V_2$$

$$(C_1V_1=C_2V_2)$$

There has been a terrible outbreak of *Killer Kool Aid*. In order to solve the mystery of the *Killer Kool Aid* you, as field scientists, must save all the children from *Killer Kool Aid*. In order to do this you need to make five different strength solutions from an original so that it may get tested by a special lab.

In order to do this you will make a series of dilutions and new concentrations from a stock solution. A total of five dilutions will be made from the original sample. Each will be of various strengths. You will use your supreme knowledge of $M_1V_1=M_2V_2$ to carry out the dilutions. Fortunately your supervisor (Mr. Golden) has found the original concentration of the **Killer Kool Aid to be 2.2M for the red, 1.5M for the blue and 3.6M for the green.**

Your field kit consist of a

- 100ml volumetric flask
- 5 Test Tubes (20ml-50ml)
- Graduated cylinder (10ml)
- ~~Distilled water~~ tap water is fine
- Safety goggles

In order for the lab to get the best results they need you and your team to make the following concentrations of the *Killer Kool Aid* from each samples (Red, Blue, and Green). Each team will complete **ALL** of the calculations for every trial, but, will only carry out ONE trail in the lab. Once you have made a solution using your volumetric flask place a portion of it in one of the test tubes in your bench rack.

. Copy data table to your paper.

Trial	Original Molarity (M_1)	Red 2.20M	Blue 1.50M	Green 3.60M	Killer Kool Aid for Dilution(ml)			Observations
					Red	Blue	Green	
1	New (M_2) Molarity	0.176	0.135	0.324				
2	New (M_2) Molarity	0.110	3.75E ⁻³	2.7 E ⁻²				
3	New (M_2) Molarity	0.088	0.075	0.180				
4	New (M_2) Molarity	1.1 E ⁻²	0.045	0.144				
5	New (M_2) Molarity	0.44	0.30	0.72				

When finished complete practice problems on board if time permits.

Disposal: All solutions can go down drain. **DO NOT DRINK THE KILLER KOOL AID**

Post Analysis Questions

- A. If a 2.00L solution contains 200.0g of sugar (MM 180.0g/mol), what is the molarity of a Kool-Aid Drink?
- B. What is the molarity of a 330mL glass of Kool aid made using the 50mL of the 2.0L Kool-Aid you made in the previous problem?
- C.
- D. If you combined all the solutions you made in the lab, what would the molarities be?